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09/518,452	03/03/2000	Robert Jeff Heath	PD-980182	7634

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THE DIRECTV GROUP INC
PATENT DOCKET ADMINISTRATION RE/R11/A109
P O BOX 956
EL SEGUNDO, CA 90245-0956

EXAMINER	
JUNTIMA, NITTAYA	

ART UNIT	PAPER NUMBER
2663	13

DATE MAILED: 06/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/518,452	HEATH, ROBERT JEFF	
	Examiner	Art Unit	
	Nittaya Juntima	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-4,16-50* is/are allowed.

6)☒ Claim(s) *5-11,13 and 14* is/are rejected.

7)☒ Claim(s) *15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 March 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on April 13, 2004.

2. The rejection to claims 18, 27-28, 36-37 under 35 U.S.C. 112, second paragraph is withdrawn in view of applicant's amendment.

3. Claim 12 is canceled as per applicant's amendment filed on October 2, 2003.

4. Claims 1-4 and 16-50 are allowed

5. Claims 5 and 7-8 are rejected under 35 U.S.C. 102(b).

6. Claims 6, 9-11 and 13-14 are presently rejected under 35 U.S.C 103(a).

7. Claim 15 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Objections

8. Claims 5, 11, 16 18, 23, 28, 37, 39, and 47 are objected to because of the following informalities:

- in claim 5 , ll 10, "one of" should be deleted to avoid any possible confusion;
- in claim 11, ll 5 and 8, "one of" should be deleted to avoid any possible confusion;

ll 7, "or" should be changed to "and" as traffic may comprise of more than one type;

ll 10, a comma should be changed to a colon;

- in claim 13, ll 4, "or" should be changed to "and;"

- in claim 16, ll 7, "or" should be changed to "and" as traffic may comprise of more than one type, and "one of" should be deleted to avoid any possible confusion;

- in claim 18, ll 2, "at least one of" should be deleted as bandwidth request can be a rate request or a volume request, but not both;

- in claim 23, ll 2, "at least" should be deleted;

ll 4, "or" should be changed to "and" to avoid any possible confusion;

- in claim 28, ll 2, "at least one of" should be deleted as channel is a data channel or a contention channel, but not both;

- in claims 30, 37, 39, and 47, ll 2, "one of" should be deleted to avoid any possible confusion.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 5, the limitation "a receiver for receiving bandwidth requests from said terminals requesting use of said channels for transmission of terminal traffic..." in lines 6-7 of the claim is vague and indefinite. It cannot be determined from the claim language as why terminals would be requesting bandwidth on "said channels" which refer to both types of channels, i.e.

unreserved contention channels and reserved data channels, each with corresponding functions as recited in lines 10-15 of the claim. The office is treating this limitation as "a receiver for receiving bandwidth requests from said terminals requesting use of some of said channels for transmission of terminal traffic...," where "some of said channels" refer to the reserved data channels.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. **Claims 5** and **7-8** are rejected under 35 U.S.C. 102(b) as being anticipated by Ahmadi et al. (USPN 5,384,777).

Per **claim 5**, as shown in Fig. 2, Ahmadai et al. teach

a processor (microprocessor system 56, col. 4, ll 52-53, 58-66 and col. 6, ll 5-14) operable to generate ***commands*** (messages signaling the beginning and the end of periods B and C, col. 5, ll 56-60 and col. 6, ll 11-23) that allocate ***a plurality of channels*** (slots in B and C periods, Fig. 3 and col. 5, ll 39-41, 44-47, 48-53, and 56-60) among ***terminals*** (remote stations, col. 5, ll 44-47 and 53-56), said terminals being operable to process said commands and use said channels according to said allocations (col. 8, ll 1-6 and 7-14 and Fig. 5),

a receiver (RF 54, col. 5, ll 5-7) for receiving ***bandwidth requests*** (transmission time requests, col. 6, ll 48-61) from said terminals requesting use of ***some of said channels*** (data slots

for contention free data transfer in B period, col. 6, ll 50 and col. 5, ll 44-48) for transmission of ***terminal traffic comprising video*** (synchronous service, i.e. video, col. 6, ll 54-55 and col. 2, ll 7-8) (Fig. 4, item 107),

a transmitter (RF 54, col. 5, ll 5-14) for transmitting said commands to said terminals (Fig. 4, items 104 and 106), wherein said processor allocates each of said channels (each slot in B and C periods) as ***an unreserved contention channel*** (data slot for a random-access mode in C period, col. 5, ll 48-53) or ***a reserved data channel*** (data slot for contentions-free data transfer in B period, col. 5, ll 44-48), said unreserved contention channels allowing said terminals to transmit said bandwidth requests (col. 6, ll 48-55 and col. 8, ll 7-14), said reserved data channels allowing said terminals to transmit said terminal traffic (col. 5, ll 44-48 and col. 8, ll 1-6), said processor dynamically changing said allocation of at least one channel from a reserved data channel to an unreserved contention channel depending on ***an amount of bandwidth requests pending*** (outstanding requests) at any given time (a data slot in B period would be allocated as a data slot in C period at least at one point in time due to slot allocation requests QB, e.g. from Time = i+3 to Time = i+4 as shown in Table 1 in col. 10, see col. 8, ll 20-23, 31-43, 46-52, 54-57 and col. 9, ll 5-15).

Per **claim** 7, Ahmadai et al. teach that ***said channels*** (slots in B and C periods) correspond to timeslots (data slots in B and C periods) in frames (Fig. 3 and col. 5, ll 39-41, 44-47, 48-53, and 56-60), ***said processor*** (microprocessor system 56, col. 4, ll 52-66, col. 6, ll 5-14) being operable to allocate said timeslots according to ***said bandwidth requests*** (transmission time requests, col. 6, ll 48-61) and ***a bandwidth allocation algorithm*** (Fig. 8 and col. 9, ll 31-37) and to generate said commands accordingly, and said terminals (remote stations, col. 5, ll 44-47

and 53-56) being operable to process commands and use said timeslots in accordance therewith (col. 7, ll 22-33, col. 9, ll 5-15, Table 1 in col. 10, Figs. 4 and 5).

Per **claim 8**, Ahmadai et al. teach that at least ***a selected minimum number*** (TC_MIN, col. 9, ll 20-24, 28-30, and 57-59) of ***said plurality of channels*** (slots in B and C periods) are configured as ***said unreserved contention channels*** (data slots for random-access mode in C period, col. 5, ll 48-53).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. **Claims 6** and **10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadi et al. (USPN 5,384,777) in view of Montpetit (USPN 6,366,761 B1).

Per **claim 6**, Ahmadi et al. fail to teach a plurality of queues where said processor writes to and reads from and stores bandwidth requests in, and that said processor allocates channels as reserved data channels according to bandwidth requests stored in said queues.

In analogous art, Montpetit teaches ***a plurality of queues connected to a processor*** (onboard computer queues OBC 69, where the processor BAP 85 writes to and reads from, stores the bandwidth requests as part of bandwidth allocation processing, Fig. 10, col. 13, lines 37-41) and that ***the processor allocates channels as reserved data channels according to bandwidth request stores in said queues*** (uplink bandwidth is allocated by BAP 85 according to rules that

govern the assignment of available slots, col. 13, ll 12 and 37-46, and col. 16, ll 29-39, see also col. 10, ll 1-5, 39-61).

Given the teaching of Montpetit, it would have been obvious to one skilled in the art to include a plurality of queues and bandwidth allocation according to requests stores on the queues into the teaching of Ahmadi et al. such that a plurality of queues connected to the processor, where said processor would write to and read from said queues, would store said bandwidth requests in said queues, and allocate said channels as reserved data channels according to said bandwidth requests stored in said queues as recited in the claim. The suggestion/motivation to do so would have been to segregate bandwidth allocation requests according to the priorities of the data packets to be transmitted and to enable the processor to efficiently process the requests according to the assigned priorities as taught by Montpetit (col. 13, ll 37-41) when request priority is available.

Per **claim 10**, Ahmadi et al. teach that ***one of the terminals*** (a remote station, col. 5, ll 44-47 and 53-56) ***transmits a bandwidth request via one of said unreserved contention channels*** (col. 5, ll 48-53 and col. 8, ll 7-14).

However, Ahmadi et al. fail to teach inband messages.

In analogous art, Montpetit teaches ***transmit other bandwidth requests subsequent to receiving channel allocations in response to the bandwidth request as inband messages via reserved allocated data channels*** (the terminal with insufficient bandwidth sends a bandwidth request to the satellite via a contention channel and the bandwidth is allocated to the terminal, then the terminal uses the allocated bandwidth to send subsequent requests using in-band data transmission, Fig. 5, col. 10, ll 9-12 and 29-38).

Given the teaching of Montpetit, it would have been obvious to one skilled in the art to incorporate inband messages such that other bandwidth requests would be transmitted as inband messages via reserved a;;pcated data channels as recited in the claim. The suggestion/motivation to do so would have been to provide a more efficient alternative to out-of-band transmission as taught by Montpetit (col. 10, ll 29-38).

14. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadi et al. (USPN 5,384,777) in view of Montpetit (USPN 6,366,761 B1), and further in view of Sasuta (USPN 5,325,598), and further in view of Mann et al. (USPN 5,167,035).

Ahmadi et al. fail to teach a signal indicating a channel release request and a timer and being programmable to wait until said time expires before transmitting another bandwidth requests.

In an analogous art, Montpetit teaches that ***a processor*** (BAP 85 in Fig. 10) ***generates and transmits a signal*** (a bandwidth allocation response) ***via a transmitter*** (inherently connected to encoder/modulator 77 in Fig. 10) ***to one of the terminals indicating that a channel release request*** (a bandwidth request with a minus sign for deallocation, col. 10, ll 55-58) ***has been processed*** (since bandwidth allocation response reporting outcome of allocation process is generated by BAP 85, col. 17, ll 15-20, and bandwidth deallocation is also provided, col. 17, ll 48-58, therefore, BAP 85 must generate the bandwidth allocation response that includes outcome of the deallocation request(s) and transmit it via the transmitter to the ground terminal(s) that submitted the request(s)).

Given the teaching of Montpetit, it would have been obvious to one skilled in the art to incorporate a signal indicating a channel release request into the teaching of Ahmadi et al. such

that the processor would be operable as recited in the claim. The suggestion/motivation to do so would have been to report the outcome of the allocation process to all requesting terminals and to provide dynamic release of allocated bandwidth that might otherwise go unused as taught by Montpetit (col. 17, ll 15-20 and 48-58).

As shown in the Fig. 7A-1, Mann et al. teaches that a timer is provided to a client node 10 and the client node 10 is programmed to wait until the timer expires before transmitting another message/request (col. 10, ll 14-21 and col. 16, ll 7-15).

Given the teaching of Mann et al., it would have been obvious to include the timer and Therefore, it would have been obvious to one skilled in the art to incorporate a timer and being programmable to wait until said time expires before transmitting another bandwidth requests into the combined teaching of Ahmadi et al. and Montpetit such that the terminal would be provided with a timer and programmed to wait for the maximum time permitted following transmission of a bandwidth request as recited in the claim. The suggestion/motivation to do so would have been to identifying the maximum time permitted following transmission of a bandwidth request before a response is expected as taught by Mann et al. (col. 10, ll 14-17).

15. **Claims 11** and **13-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Montpetit (USPN 6,366,761 B1).

Per **claim 11,** Montpetit teaches ***a bandwidth on demand communication system*** (Fig. 10), ***channels*** and ***timeslots*** (inherently correspond to uplink bandwidth/data channel for scheduled data transmission and contention channel for unscheduled data and bandwidth request, col. 7, ll 44-54 and col. 10, ll1-5), ***the bandwidth requests*** (bandwidth requests include rate request, col. 10, lines 39-48, and inherently include volume requests since volume-based

allocation is used, col. 9, lines 8-10) ***rate request*** (col. 7, lines 65-col. 8, lines 1-5), ***volume requests*** (col. 8, lines 32-48), ***terminal traffic*** (data packets, col. 4, lines 37-40, see also col. 2, lines 27-33), ***each volume request is characterized as high priority or low priority*** (col. 8, lines 48-58), ***terminals*** (ground terminals 21a-d in Fig. 3, and col. 10, lines 1-5), ***a processing device for providing channel allocations*** (the bandwidth allocation processor BAP 85 in Fig. 10, col. 9, lines 40-42, and col. 13, lines 32-34), ***a first queue for storing high priority rate requests*** (P1 queue is used to store P1 rate allocation request, col. 9, ll 10-12 and col. 13, ll 37-41, see also col. 6, ll 3-4), ***a fourth queue for storing low priority volume requests*** (P4 queue is used to store P4 volume allocation request, col. 9, ll 26-27 and col. 13, ll 37-41, see also col. 6, ll 34-36).

Montpetit does not teach that each of the rate requests is characterized as high priority or low priority, a second queue for storing low priority rate requests, a third queue for storing high priority volume requests, allocating a selected number of the timeslots in each of the frames to each of the high priority rate requests in the first queue and the low priority rate requests, the sum of the number of the allocated timeslots in each frame allocated to the rate requests in first and second queues not exceeding a total number of timeslots in a frame, allocation of the timeslots to rate requests stored in second queue being preempted for one frame by allocation of the timeslots to rate requests stored in the first queue, and high and low priority volume requests being preempted for one frame by allocation to rate requests store in the first and second queues.

However, Montpetit also teaches that a rate request is being characterized as high priority (high priority rate-based bandwidth P1 requests, col. 9, lines 11-12, see also col. 6, lines 3-41) and a first queue (P1), a second queue (P2), a third queue (P3), and a fourth queue (P4) (four priority levels: P1, P2, P3, and P4 are provided in multiple queues OBC 69 in Fig. 10, col. 13,

lines 28-29 and 34-41 and col. 6, lines 3-41), allocating number of timeslots in each frame to requests in the first and second queues accordingly (col. 13, lines 37-46), the sum of the number of the allocated timeslots in each frame not exceeding a total number of timeslots in a frame (col. 7, lines 44-63 and col. 17, lines 14-19), allocation to the second queue (P2) being preempted by the first queue (P1), and requests in third and fourth queues (P3 and P4) are preempted by requests in first and second queues (lower priority queue is preempted in favor of higher priority queue with P1 having highest priority and P4 having lowest priority, col. 13, lines 49-52).

Therefore, it would have obvious to one skilled in the art to modify the teaching of Montpetit by providing low priority rate requests and high priority volume requests and storing them in a second and third queues, respectively, such that each of the rate requests would be characterized as high priority or low priority, a second queue store low priority rate requests, a third queue store high priority volume requests, a selected number of the timeslots in each of the frames would be allocated to each of the high priority rate requests in the first queue and the low priority rate requests, the sum of the number of the allocated timeslots in each frame allocated to the rate requests in first and second queues would not exceed a total number of timeslots in a frame, allocation of the timeslots to rate requests stored in second queue would be preempted for one frame by allocation of the timeslots to rate requests stored in the first queue, and high and low priority volume requests would be preempted for one frame by allocation to rate requests store in the first and second queues as recited in the claim. The suggestion/motivation to provide low priority rate requests would have been to provide an alternative option to a high priority rate request to users with different budgets since Montpetit disclosed that users are charged according

to the QoS selected for each transmission (col. 5, ll 53-61). The suggestion/motivation to store low rate priority volume requests in second queue and high priority volume requests in third queue would have been to generate more revenue to a satellite by providing higher priority to rate requests since Montpetit disclosed that users are charged according to the QoS selected for each transmission (col. 5, ll 53-61), and rate bandwidth allocations are recurring (col. 8, ll 1-5) while volume allocations are partial allocations or one time allocation (col. 8, ll 48-52 and 54-58).

Per **claim 13**, Montpetit teaches that ***the volume requests stored in the fourth queue are preempted for one frame by allocation of timeslots to rate requests stored in the first queue*** (P4 queue storing rate requests is preempted in favor of P1 queue storing rate requests, col. 9, ll 10-12 and 26-27, and col. 13, ll 37-41 and 49-52).

Per **claim 14**, although Montpetit fails to teach that the volume requests are allocated on a round-robin basis, it would have been obvious to one skilled in the art to program the processing device (the bandwidth allocation processor BAP 85 in Fig. 10, col. 13, lines 32-41 and 65-col. 14, lines 1-3) to allocate the timeslots in each frame to the volume requests in the third and fourth queues using a simple allocation scheme such as a round-robin so that timeslots are allocated in an orderly fashion and without contention.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 703-306-4821. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 703-308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANDY LEE
PATENT EXAMINER

Nittaya Juntima
June 22, 2004